

Changing How the World Learns

Title: Cells

Subject: Subject

Grade: 6-7

Cross-curricular links: Reading

Overview: This activity allows students to learn information about cells. Students identify the organelles located inside a cell and the function of each organelle. Lastly, students create and label a diagram of a plant and animal cell.

created by: Cama-Kalee Jones



What do you know about cells?

Bacteria
Prokaryotic
unicellular

Plant & Animal
Eukaryotic
multicellular



Cells



Connective tissue cell



A cell is the smallest unit of life that can carry out all life processes.



Cells are sometimes called "the building blocks of life."



All living things are composed of cells.



Red Blood Cell



Most cells are microscopic in size.



Bone Cell



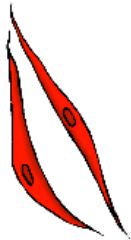
~~Some animals and plants are composed of only one cell.~~



The human body is made up of 75 trillion highly specialized cells.



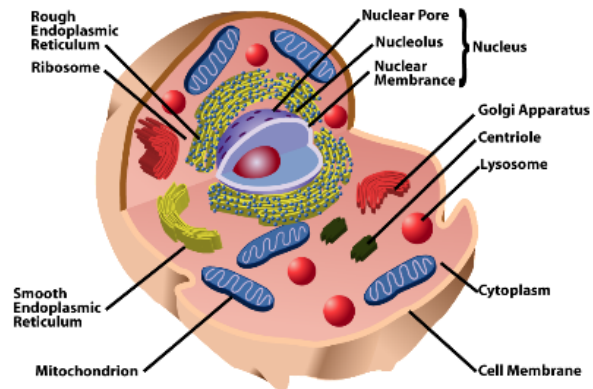
Cells have different body functions



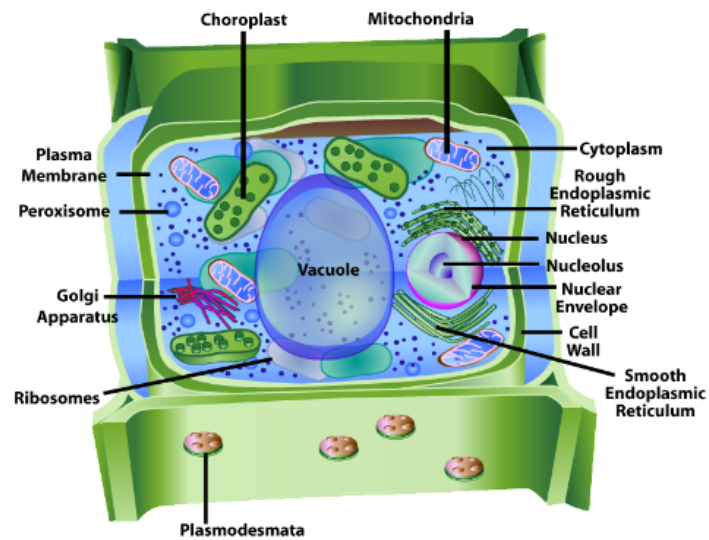
Muscle cell

Cells in living things have similar structures and functions.

Animal Cell Diagram



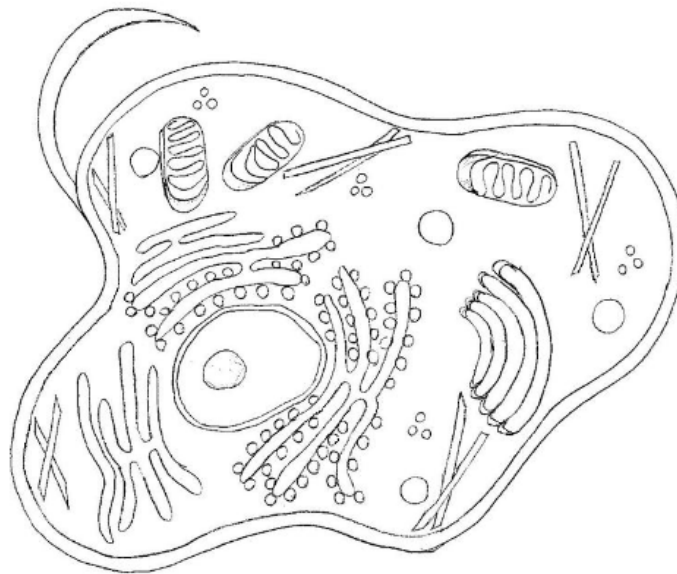
Plant Cell Diagram



Cell Membrane

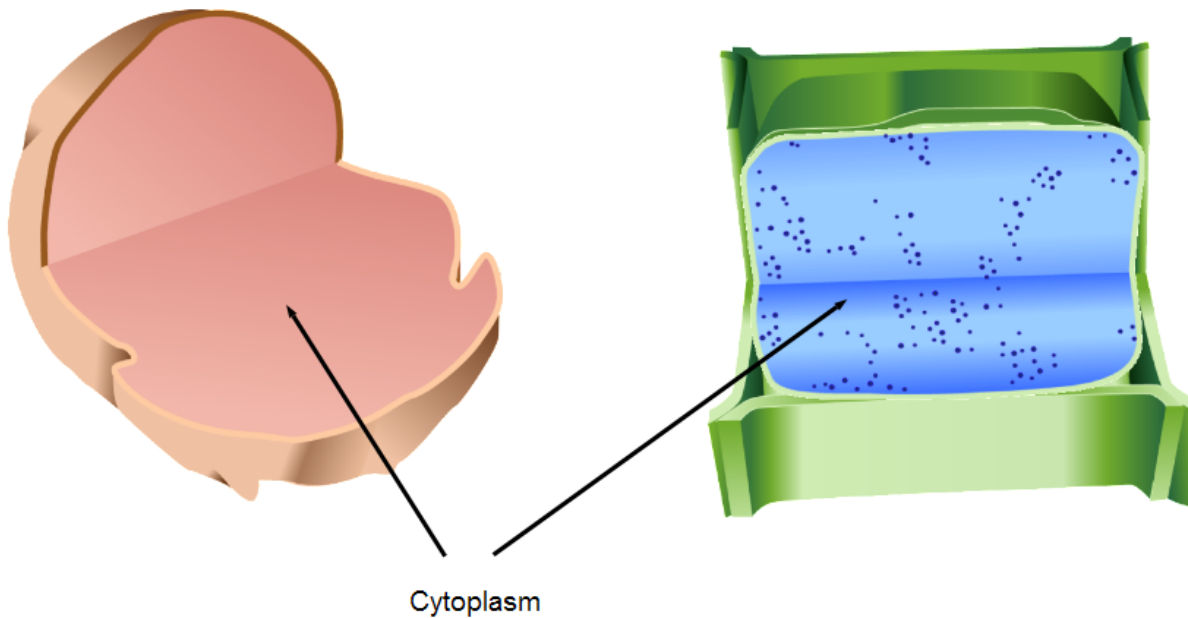
The **cell membrane** is the outer boundary of the cell. It only allows some things in and out of the cell. The cell membrane lets in food, oxygen, and water. It also allows waste products to leave the cell. Plant cells let in carbon dioxide instead of oxygen.

Color the cell membrane of this cell.



Cytoplasm

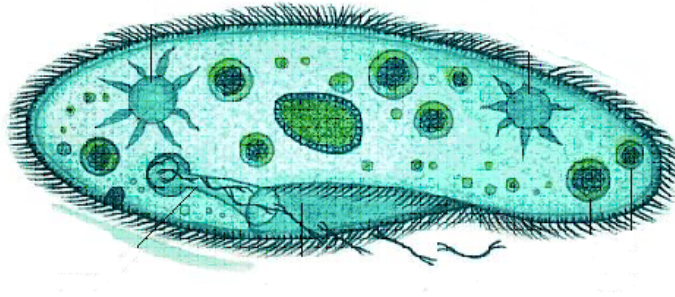
The **cytoplasm** is a jelly-like liquid inside the cell membrane. The cytoplasm contains water, chemicals, and structures that carry out the processes of the cell. All of the structures inside the cytoplasm are called organelles.



Nucleus

The **nucleus** of a cell is like the cell's brain. It directs all of the activities of the cell. The nucleus contains genetic blueprints for the operations of the cell.

Use the rainbow pen to circle the nucleus of this protozoa.



mrspullin - ONLINE PRACTICE x Bacterial Cell Model x PowerTeacher

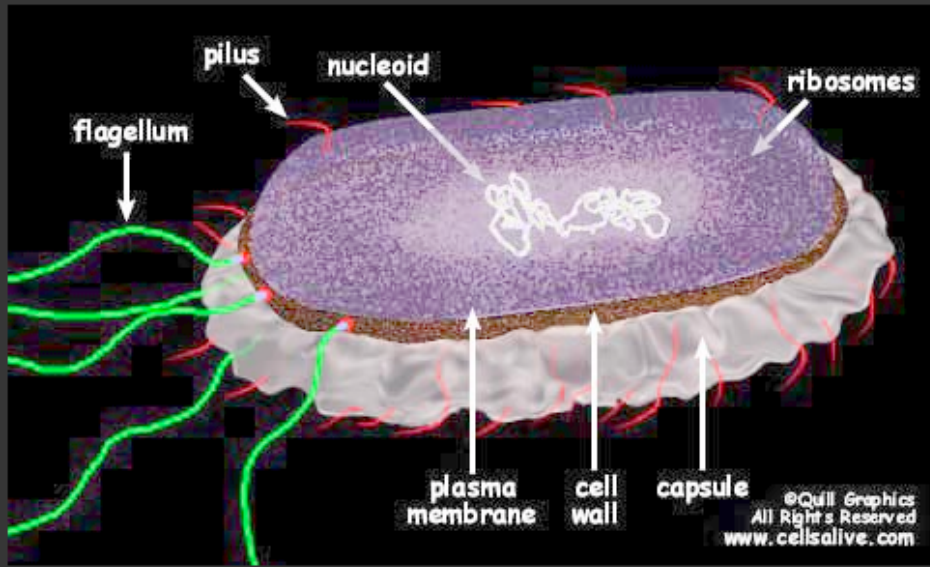
www.cellsalive.com/cells/bactcell.htm#cytoplasm

CMCSS PowerTeacher PLAN mrspullin - WIKI Empowerstudents WCMS Faculty In CMSS Resource Bookmarks

Cell Models Bacterial Cell Structure Plant and Animal Cell Animation

Bacterial Cell Structure

Prokaryotic = No Nucleus



The diagram illustrates a cross-section of a bacterial cell. It features a central purple nucleoid containing white DNA strands. Surrounding the nucleoid is a thin layer of ribosomes. The cell is enclosed by a plasma membrane, a thick cell wall, and an outer capsule. Long, green, whip-like flagella extend from one end, while short, red, hair-like pili are attached to the surface. Labels with arrows point to the pilus, nucleoid, ribosomes, flagellum, plasma membrane, cell wall, and capsule.

Internal Structures
Nucleoid
DNA
Ribosomes

Surface Structures
Cell wall
Plasma membrane
Outer membrane
Capsule

Appendages
Flagella
Pili

What's In Your Water?
Find out more about bacteria how Kinetico can help!
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Internal Structure: Bacteria have a very simple internal structure, and no membrane-bound organelles.

http://www.cellsalive.com/cells/bactcell.htm#cytoplasm

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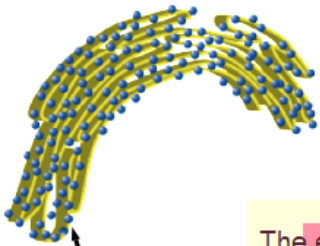
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[Animal Cell](#)

Animal Cell Organelles

The cell organelles have different jobs.

Rough Endoplasmic Reticulum



ribosomes

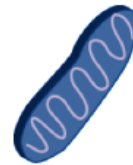
Smooth Endoplasmic Reticulum



The endoplasmic reticulum is an organelle that moves materials from one place to another within the cell.

Cells make their own protein. Protein is needed for chemical reactions to take place in the cytoplasm. Cells make this protein on ribosomes. Ribosomes float around in the cytoplasm, or are attached to the endoplasmic reticulum.

Mitochondria



The mitochondria is where food molecules are broken down and energy is released.

Golgi Apparatus



The golgi apparatus packages and moves proteins to the outside of the cell.

Plant Cell Organelles

Plant cells have many of the same organelles as animal cells.

Mitochondria



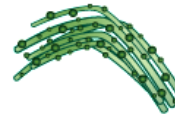
Ribosomes



Smooth Endoplasmic Reticulum



Rough Endoplasmic Reticulum

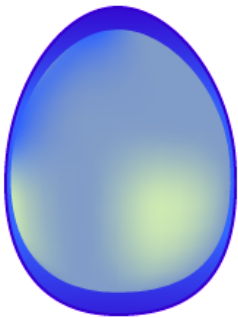


Golgi Apparatus



In addition to these organelles, plant cells also contain:

Vacuole



A **vacuole** is a temporary storage space for the cell. This organelle stores water, food, pigments, wastes, and other materials.

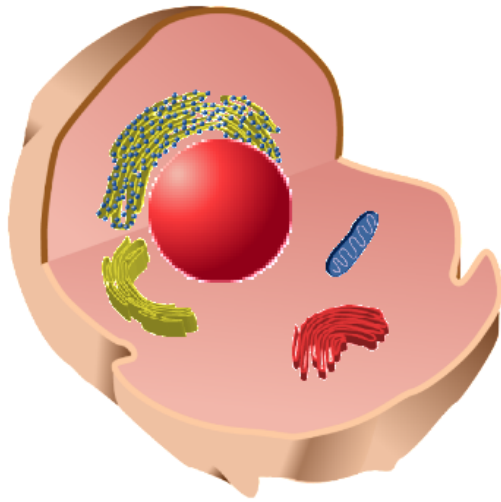
Chloroplast



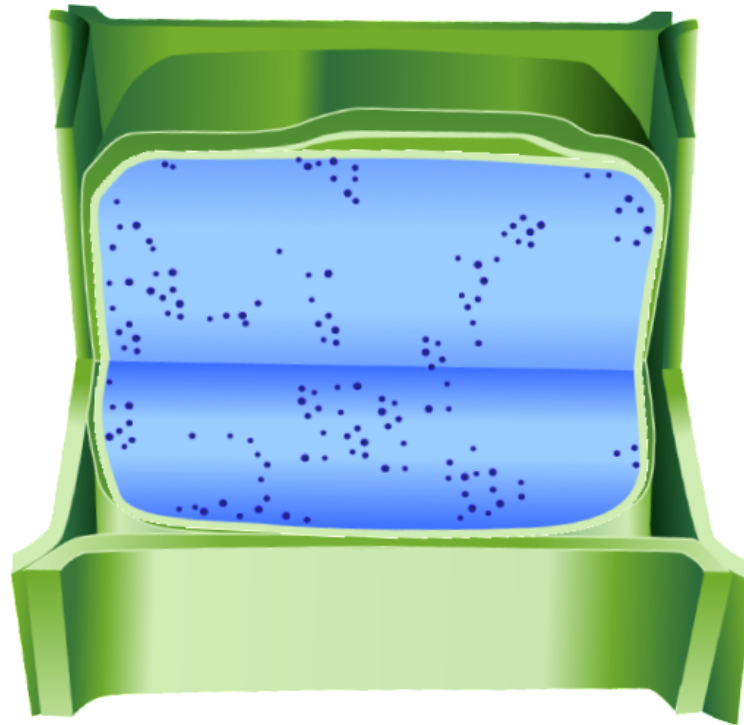
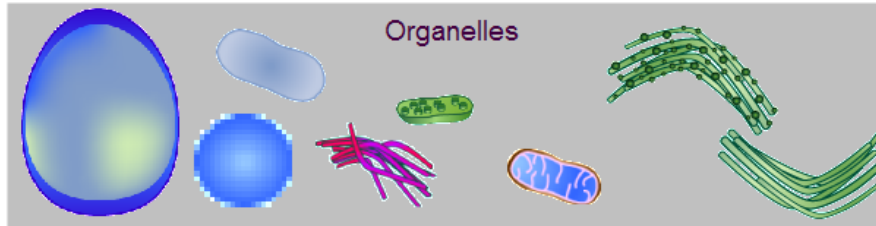
The **chloroplast** uses light energy to convert carbon dioxide to carbon sugar molecules.

Use the organelles provided to create a diagram of an animal cell.
Use the pen tool to label each organelle.

Organelles



Use the organelles provided to create a diagram of an plant cell.
Use the pen tool to label each organelle.



Use the highlighter to find these words. Change the highlighter to green for the organelles that are only found in plant cells.

Word List

cytoplasm
nucleus
ribosome
mitochondria
golgi apparatus
vacuole
chloroplast
cell membrane
endoplasmic reticulum

e o e m v a c u o l e a e c e i a c p
n t o o n r h o m a l m d t a m t p o
d r e n u c l e u s i l a l u e n o c
o r i b o s o m e c s s a a m n r p n
p i o c a m r c o n l u d p p a o r l
l c n n s e o y e d b p r c h n s l l
a u a a m r p t o l e h c y l s e l m
s i l i o p l o m e l g i e i p p i o
m g o l g i a p p a r a t u s g i p n
i u c s s s s l s p e c c p a n a o g
c c s e u o t a m i t r o c a n i o a
r m a t i i n s n a p h a s t o o n v
e t m d u s o m o a e e c n l d a l a
t u s o a s t t l e s a t i m r t e o
i e t t s c c v e o p i n r s u v t r
c e l l m e m b r a n e l s p o c e m
u a s r l b a e m t c d n o l c h i e
l o e e c o m m u e c c m d p t m d m
u m l a u b r m e e o a c m d s p h l
m i t o c h o n d r i a e s v a m o n

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	e	o	e	m	v	a	c	u	a	e	c	i	a	c	p				
2	n	t	o	o	n	r	h	o	m	a	l	m	d	t	a	m	t	p	o
3	d	r	e	n	u	c	l	e	u	s	i	l	a	l	u	e	n	o	c
4	o	r	i	b	o	s	o	m	e	c	s	s	a	a	m	n	r	p	n
5	p	i	o	c	a	m	r	c	o	n	l	u	d	p	p	a	o	r	l
6	l	c	n	n	s	e	o	y	e	d	b	p	r	c	h	n	s	l	l
7	a	u	a	a	m	r	p	t	o	l	e	h	c	y	l	s	e	l	m
8	s	i	l	i	o	p	l	o	m	e	l	g	i	e	i	p	p	i	o
9	m	g	o	l	g	i	a	p	p	a	r	a	t	u	s	g	i	p	n
10	i	u	c	s	s	s	s	l	s	p	e	c	c	p	a	n	a	o	g
11	c	c	s	e	u	o	t	a	m	i	t	r	o	c	a	n	i	o	a
12	r	m	a	t	i	i	n	s	n	a	p	h	a	s	t	o	o	n	v
13	e	t	m	d	u	s	o	m	o	a	e	e	c	n	l	d	a	a	
14	t	u	s	o	a	s	t	t	l	e	s	a	t	i	m	r	t	e	o
15	j	e	t	t	s	c	c	v	e	o	p	i	n	r	s	u	v	t	r
16	c	e	l	l	m	e	m	b	r	a	n	e	l	s	p	o	c	e	m
17	u	a	s	r	l	b	a	e	m	t	c	d	n	o	l	c	h	i	e
18	l	o	e	e	c	o	m	m	u	e	c	c	m	d	p	t	m	d	m
19	u	m	l	a	u	b	r	m	e	e	o	a	c	m	d	s	p	h	l
20	m	i	t	c	h	o	n	d	r	i	a	e	s	v	a	m	o	n	

(H5, S) **cytoplasm**(D3, E) **nucleus**(B4, E) **ribosome**(A20, E) **mitochondria**(B9, E) **golgi apparatus**(E1, E) **vacuole**(G1, S) **chloroplast**(A16, E) **cell membrane**(A1, S) **endoplasmic reticulum**